TO:	Mr. Carl P. Garvey and Mr. M. Brendan Mullen (Revitalizing Auto Communities Environmental Response Trust) Mr. Alan J. Knauf and Ms. Linda R. Shaw (Knauf Shaw LLP)
FROM:	Katherine Lasseter, Jason Dittman, Jamie Combes, and Jill DeMars (TIG Environmental) 443 North Franklin Street, Suite 220, Syracuse, NY 13204
SUBJECT:	**Evidence Summary Memorandum for Roth Brothers Site**
DATE:	October 2, 2019

1. Introduction

Revitalizing Auto Communities Environmental Response (RACER) Trust and Knauf Shaw LLP (Knauf Shaw) contacted TIG Environmental[1] to provide consulting services regarding potentially responsible party (PRP) identification and investigation, sampling and data analysis, and expert witness testimony to support RACER Trust and Knauf Shaw during litigation proceedings stemming from a Civil Action No.: 5:18-cv-1267 [DNH/ATB] filed on October 26, 2018 (the Complaint) (RACER 2018).

In the Complaint, RACER Trust, by its attorneys, Knauf Shaw LLP, brings claims for cost recovery and contribution under Sections 107(a) and 113(f) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. 9607(a) and 9613(f), inter alia, against parties (Defendants) operating in or around the Ley Creek Watershed Site (Study Area) in Onondaga County, New York. The Complaint asserts that the Defendants are responsible to contribute to the cost of past and future investigations to address contamination in and around the Study Area.

The Study Area consists of the GM-Inland Fisher Guide Facility (GM-IFG) Sub-Site Operable Unit 1 (OU-1), the expanded OU-2 area (Ley Creek from Townline Road west to Route 11, including creek banks and limited floodplain and hotspot areas), and tributaries upstream of Townline Road bridge. As defined in the Record of Decision (ROD) for OU-2, the identified contaminants of concern (COCs) in the Study Area are polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), chromium, copper, lead, nickel, and zinc. PCBs are the predominant contaminants in Ley Creek sediments (NYSDEC and EPA 2015).

In this evidence summary memorandum (ESM), TIG Environmental reviewed evidence gathered by RACER Trust and Knauf Shaw to evaluate the following for each Defendant's site:

- Documented and suspected PCB usage at the Defendant's site

[1] TIG Environmental is a member of The Intelligence Group, LLC.

- The existence of PCB-containing electrical equipment or electrical substations (utility- or Defendant-owned) on Defendant's site
- Whether pathways exist between the Defendant's site and the Ley Creek watershed (defined as Ley Creek and its tributaries)

Sections 2 through 4 summarize the available information on Defendant operations related, or potentially related, to PCB usage; detections of contaminants at or related to the Defendant's site; permits, waste handling, spills, and/or releases at each Defendant's site; whether pathways from the Site to Ley Creek watershed can be determined; data gaps; and proposed sampling to address identified data gaps. Defendant information, site ownership information, and dates of operation for the Defendant's site are available in Knauf Shaw's site dossier (Knauf Shaw Roth Brothers Site Dossier 2018).

2. Description of Site Operations Related to PCBs

From 1949 to 1999, Roth Brothers (and later Philip Metals, formerly known as Philip Environmental) operated a non-ferrous metals and alloy reclaiming facility at the Roth Brothers Site (the Site) (Knauf Shaw Roth Brothers Site Dossier 2018, 1; Knauf Shaw Roth Brothers Exhibit G, 1) at 6223, 6225, and 6215 Thompson Road in North Syracuse, New York. Plant 1 was located at 6223 and 6215 Thompson Road; Plant 2 was located at 6225 Thompson Road (Google Earth 2018).

In 1999, both Plant 1 and Plant 2 properties were purchased by Wabash Aluminum Alloys (Knauf Shaw Roth Brothers Site Dossier 2018, 1). Thompson Corners, LLC purchased Plants 1 and 2 in 2005. In 2006, the Plant 2 property was sold to Metalico Syracuse Realty Inc. that now operates a secondary smelting and aluminum alloying facility onsite (Knauf Shaw Roth Brothers Site Dossier 2018, 2). In 2013, the Plant 1 property was sold to Hauler's Facility LLC (doing business as Syracuse Haulers Waste Removal Inc.) that now operates a waste recycling and removal facility onsite (Knauf Shaw Roth Brothers Site Dossier 2018, 2).

Metalico Aluminum Recovery, Inc. (MARI) assumed Wabash Aluminum Alloys, LLC's (Wabash's) obligation of conducting environmental monitoring and testing at the Site under a Consent Order with the New York State Department of Environmental Conservation (NYSDEC) (FOIL209537 at FOIL209539). Groundwater monitoring is currently conducted by Barton & Loguidice on behalf of MARI.

Roth Brothers' operations included aluminum and zinc smelting, lead-tin alloy soldering, and copper wire insulation incineration (Knauf Shaw Roth Brothers Site Dossier 2018, 1; FOIL204759 at FOIL204775). Roth Brothers used three aluminum furnaces (Plant 1) and a sweat furnace (in Plant 2, used to separate metals at different melting points) for scrap metal operations (FOIL204759 at FOIL204767, 773, 809). Until 1989, Roth Brothers used a zinc, aluminum, magnesium, copper (ZAMAC) reverberatory furnace (Plant 1) to process aluminum and zinc scrap (FOIL204759 at FOIL204775, 809, 835). A copper rotary furnace (Plant 2) was used for removal of insulation from copper wire from the 1960s until 1991 (FOIL204759 at FOIL204775, 789, 809). A lead rotary furnace and lead tilt furnace (Plant 2) were used as part of the lead-tin soldering operations from 1955 to 1991 (FOIL204759 at FOIL204778, 789, 809). Roth Brothers' operations also included scrap metal storage and processing (FOIL207154 at FOIL207159), including processing of

aluminum twitch[2] (FOIL207154 at FOIL207168). Roth Brothers processed scrap metal to produce lead and aluminum with "controlled amounts of impurities" (FOIL204076 at FOIL204085). Scrap metal operations can be associated with hydraulic oils and lubricants. Hydraulic fluids are typically associated with Aroclors[3] 1232–1260 (Aroclors 1232, 1242, 1248, 1254, 1260) and cutting oils with Aroclor 1254 (Erickson and Kaley 2011, 10). In 1976, the EPA classified use of PCBs in hydraulic fluids as a "nominally closed" application (EPA 1976, 227). Even though hydraulic systems are supposedly closed, the EPA estimated that 60% of the PCBs used in such systems was lost to the environment on an annual basis due to spills in the system and inadequate disposal of the PCB-containing materials (EPA 1976, 307).

Melting scrap metal to form new metal components may generate PCBs (Wu et al. 2014, 1; Grochowalski and Konieczyn'ski 2008, 1, 5). Because scrap materials may contain various amounts of other chlorinated compounds as part of the scrap (such as polyvinyl chloride [PVC] plastics, cutting oils, industrial coatings, paints), the metals melted in furnaces may generate PCBs (Wu et al. 2014, 1–2) and polychlorinated dibenzo-p-dioxin/dibenzofurans (PCDD/Fs) in the dust produced by the furnace that can be transported by aerial emissions (Cappelletti et al. 2016, 2; Aries, Anderson, and Fisher 2008, 3; Wu et al. 2014 at pp. 1–2; Kakareka and Kukharchyk, 2005, 5; Dyke 1998, 37). Because the PCBs are inadvertently generated during scrap metal recycling, the specific PCB congeners that may be associated with each particular furnace are unknown. Studies of PCBs generated by furnaces and incinerators have identified a wide range of congeners (Dyke et al. 1998, 15, 20–23, 27). However, inadvertent PCB generation correlates with PCDD/F generation (dioxin-like PCBs); and congeners inadvertently produced have a higher degree of chlorination[4] than other technical PCB mixtures (Jiang et al 2015, 6–7; Ba et al 2009, 4–5). In a 2015 evaluation of the presence of PCBs in ash generated in industrial thermal processes such as the heating of metal in furnaces, PCB-180 (heptachlorobiphenyl) was found to be a dominant congener after thermal processes, as well as the decachlorobiphenyl homolog (PCB-209) (Jiang et al 2015, 6). Carbon sources for PCDD and PCB formation in secondary smelting can include impurities within the raw material or partially combusted fuel and coke. Formation is catalyzed by non-ferrous metals (aluminum, zinc, copper) and usually occurs in the cooling stage/zone of the furnace (Jiang et al 2015, 5; Ba et al 2009, 1). Further, because this is an inadvertent process, melting of scrap metal in furnaces continues to pose a human health and environmental risk despite the ban on PCB manufacture in 1979 (Jackson et al. 2011, 1; Cappelletti et al. 2016, 1–2; Kuzu et al. 2013, 3). Roth Brothers incinerated copper wire insulation; wire and cable coatings can be associated with PCB Aroclors 1254 and 1260 (Knauf Shaw Roth Brothers Site Dossier 2018, 1; FOIL204759 at FOIL204775; Erickson and Kaley 2011, 10).

[2] Twitch is the product of a scrapping process; after non-ferrous metals are separated from shredded scrap material, they are processed into "light fraction," which consists of aluminum and magnesium (Klein Recycling 2019).

[3] Beginning in 1935, Swann Chemical Company, followed by the Monsanto Company, produced commercially available PCB-containing goods in a line of products known as "Aroclors." Each of the 10 common PCB Aroclor mixtures are generally associated with certain signatures of PCB congeners (there are 209 PCB congeners) (Erickson and Kaley 2011, 2–3). The style of reporting analytical data for PCBs varies in reviewed documentation. Results may be reported as individual Aroclors and/or congeners, as a sum of all or some of these analytes, or simply as "PCBs." For purposes of this memorandum, TIG Environmental will state "total PCBs" when the source document has reported analytical results as either "PCBs" or "total PCBs." This is presumed to represent the sum of PCB Aroclors or congeners. TIG Environmental will report Aroclor- or congener-specific data where that information is available.

[4] Higher PCB congener values correlate to greater numbers of chlorine atoms attached to biphenyl rings (Erickson and Kaley 2011, 3).

Roth Brothers stored aluminum dust, copper, lead dust, lead slag, and electroplating sludge in several designated areas (FOIL200839 at FOIL200840). NYSDEC identified the storage of metal turnings as a potential PCB source due to the possibility that the turnings are coated in PCB-contaminated oil (FOIL200839 at FOIL200840).

Railroad spurs are located along the southern property boundary (Knauf Shaw Roth Brothers Exhibit I, 4). From the 1940s to the mid-1980s, transformers were used on rail cars (Slater 1996, 21). PCB fluids and electrical equipment were used in railroad systems (USDOT 1984, 25) and the resulting PCB contamination is an issue at railcar maintenance locations and transit yards (Slater 1996, 29). Equipment typically used in railroad systems includes railroad (on-board) transformers and capacitors (Slater 1996, 31). Aroclors 1260 and 1254 are specifically associated with transformers (Erickson and Kaley 2011, 10).

Several different types of furnaces were used for onsite operations, including reverberatory, sweat, rotary, and tilt furnaces (FOIL204759 at FOIL204773, 775, 778 809, 835). Sweat, rotary, and tilt furnaces are powered by either electric or gas sources (EPA 1995, 27, 58, 104). Although the power source for furnaces onsite has not been found in available documents, large electric furnaces require the use of transformers to increase, adjust, and maintain electrical currents to power the furnaces. Operations at the Site also included the use of a transformer substation located at the southeast corner of the Plant 2 property (FOIL204207 at FOIL204212). In 1991, H&A of New York noted visibly stained soils near the transformer substation during an onsite sampling effort. PCBs were detected at 0.588 ppm (FOIL204207 at FOIL204212–213). Historically, these transformers were typically filled with PCB-containing oil (EPA 1976, 256; Erickson and Kaley 2011, 8–9). Each transformer may contain up to 3,000 gallons of oil comprised of 40 to 60 percent PCBs (EPA 2004, 58). Specifically, transformers used to power electric furnaces each contained 900 kilograms (kg) to 1,800 kg of PCB-containing fluid (Erickson and Kaley 2011). Typical PCB Aroclors associated with transformers are Aroclors 1254 and 1260 with Aroclors 1242 and 1016 as minor constituents (Erickson and Kaley 2011, 10).

2.1 Discharge Permits, Waste Handling, and/or Spills at the Site

2.1.1 Discharge Permits

Roth Brothers held a State Pollutant Discharge Elimination System (SPDES) permit #NY0110311 for outfalls 001, 002, 004, and 005, with direct stormwater discharge to South Branch Ley Creek. According to available documentation, the permit expired October 1, 1996 (FOIL211989 at FOIL211990). The permit issue date and the dates of any subsequent renewals is not available in reviewed documents. A memo from NYSDEC dated August 10, 1988 indicates there had been documented exceedances of the PCB daily limit (1 part per billion [ppb]) at the Site from 1986 and 1987 under the Roth Brothers SPDES permit #NY0110311 and further notes that PCB-contaminated groundwater may be infiltrating into the storm sewer system which conveys the permitted discharges (FOIL203735 at FOIL203735). However, the suspected source(s) of PCBs to groundwater are not noted in the document. Violations of the SPDES permit maximum daily limit for PCB Aroclors 1242 and 1248 have been documented for several permit reporting periods between 1991 and 1994 at outfalls 001, 002, and 004 (FOIL207154 at FOIL207162, 163). Reported concentrations for exceedances between 1991 and 1994 are not available in reviewed documents.

Metalico Aluminum Recovery, Inc. holds SPDES permit # NY0261947 for outfalls 001 and 002 at Plant 2 (Knauf Shaw Roth Brothers Exhibit E, 1). Metalico Aluminum Recovery, Inc. discharges have exceeded the maximum limit for individual PCB Aroclors several times between 2017 and 2019 and the company has discharged low levels of PCB Aroclors (up to 0.75 ppb) consistently (Knauf Shaw Roth Brothers Exhibit E, 1, 5, 6, 25, 37, 41, 45, 47, 81).

2.1.2 Waste Handling Related to PCBs

TAMS Consultants, Inc. identified the processing of aluminum twitch as the source of PCB-contaminated baghouse dust (FOIL207154 at FOIL207165). Processing of aluminum twitch involves separating aluminum and magnesium content from heavier metals such as copper, zinc, brass, and stainless steel during scrap metal recovery (Klein 2019). The separation involves the use of recovery furnaces for melting/smelting to either reuse or sell (CR3 2016, 12). Melting scrap metal to form new metal components may generate PCBs (Wu et al. 2014, 1; Grochowalski and Konieczyn'ski 2008, 1, 5). According to waste manifests provided to TAMS Consultants, Inc. by Roth Brothers, between 1992 and 1994, Roth Brothers shipped 1.3 million pounds of PCB-contaminated dust offsite for disposal at various landfills outside the Onondaga Lake watershed in New York, Alabama, Indiana, Ohio, Oregon, and Michigan (FOIL207287 at FOIL207295). Waste manifest records during Roth Brothers entire operating period are not currently available; therefore, it is unknown how often PCB-contaminated dust was shipped offsite. In 1994, TAMS Consultants, Inc. reported that Roth Brothers stored PCB-containing hazardous waste (in the form of baghouse dust) onsite in excess of the 90-day Resource Conservation and Recovery Act (RCRA) regulation period with concentrations up to 5,000 parts per million (ppm) (FOIL207154 at FOIL207161).

From 1976 to 1979, Roth Brothers historically dumped baghouse dusts from lead smelting operations and construction debris generated onsite in an area (approximately 7 acres) of the Site north of Plant 2 (FOIL207287 at FOIL207305; FOIL204207 at FOIL204225). The highest reported PCB and lead detections in soil were from samples collected in the dumping area (referred to in site investigation documents as the 'northern fill area'), the portion of the Site closest to South Branch Ley Creek (FOIL207287 at FOIL207306, 317). The highest reported PCB detection (unknown whether individual Aroclor or calculated total) was 204 ppm and the highest lead detection was 220,000 ppm. The duration of Roth Brothers' dumping operation is not available in reviewed documents.

2.1.3 Spills Related to PCBs

No spill information is available for this Site.

2.2 PCB Discharges to Ley Creek or Tributaries

This section discusses the documented or potential discharge pathways of PCBs from the Site, with emphasis on discharges to Ley Creek or its tributaries.

2.2.1 Storm Sewer

This section discusses the documented or potential PCB-containing discharges from the Site via storm sewers. At one time during the Roth Brothers' operational period, five outfalls received stormwater runoff from Plant 1 and Plant 2 (Knauf Shaw Roth Brothers Exhibit H, 6).

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- Outfall 001 is located along the western boundary of the Site, west of Plant 2 (Knauf Shaw Roth Brothers Exhibit H, 6). The outfall drainage area includes several manholes and catch basins surrounding Plant 2 and was covered under SPDES permit #NY0110311 (FOIL207546 at FOIL207550–553; FOIL200839 at FOIL200841; FOIL207546 at 548). Outfall 001 received cooling water from the lead furnace in Plant 2 (FOIL204759 at FOIL204781). Outfall discharges are received by the western drainage ditch (FOIL204207 at FOIL204224). PCB Aroclors 1016/1242 were detected at 6.9 ppm, and Aroclor 1254 at 1.6 ppm within the western drainage ditch (FOIL204207 at FOIL204224).
- Outfall 002 is located on the east side of Plant 2 near the railroad spur onsite, which receives runoff from Plant 2, the western portion of Plant 1, and the parking lot located at the southern end of the Site (FOIL204076 at FOIL204089, 091). Drainage to outfall 002 was covered under SPDES permit #NY0110311 and discharges to South Branch Ley Creek via the eastern drainage ditch, running north along the property line. In 1991, consultant H&A of New York observed an oily sheen on the water within the drainage ditch during sediment sample collection (FOIL204076 at FOIL204094–095). Outfall 002 was covered under the Roth Brothers SPDES permit at one time; sediment samples collected from the outfall drainage ditch in 1991 had detectable concentrations of total PCB Aroclors up to 11.95 ppm (FOIL204076 at FOIL204101, 115). PCB Aroclors 1016/1242 were detected at 4 ppm within the eastern drainage ditch (FOIL204207 at FOIL204225).
- Outfall 003 was formerly located between Plant 1 and Plant 2, identified as an operable unit due to historical placement of solid wastes (including scrap wood, scrap metal, and “blackened soil”) (FOIL204759 at FOIL204879). The outfall historically received drainage from the maintenance yard which included a diesel pumping station, steam cleaning room, and former USTs (FOIL204759 at FOIL204887). Runoff from this area discharged to South Branch Ley Creek (FOIL204759 at FOIL204933). In 1986, Roth Brothers combined the outfall 003 drainage area with the outfall 002 drainage area, which was covered under SPDES permit #NY0110311 (FOIL204759 at FOIL204887).
- Outfall 004 was located east of Plant 1 (Knauf Shaw Roth Brothers Exhibit H, 6). The outfall drainage area included yard drainage, roof drains, catch basins, and surface water surrounding Plant 1, and was covered under SPDES permit #NY0110311 (FOIL207546 at FOIL207550–553, 549; FOIL200839 at FOIL200841).
- Outfall 005 was located east of Plant 1 on the eastern boundary of the Site and received discharges from Plant 1 (Knauf Shaw Roth Brothers Exhibit H, 6). The outfall was included under the Roth Brothers SPDES permit #NY0110311 as of 1985; the starting date of permitted discharge from this outfall is not known (Knauf Shaw Roth Brothers Exhibit H, 6; FOIL212395 at FOIL212395). Outfall 005 received cooling water from the ZAMAC furnace (FOIL204759 at FOIL204781). South Branch Ley Creek is noted as the receiving waters for outfall 005 (FOIL212395 at FOIL212431, 433).
- Available documentation indicates PCBs were detected in onsite storm sewer outfalls in exceedance of the SPDES permit limit (1 ppb) between 1986 and 1988 and were detected above the maximum daily limit for PCB Aroclors 1242 and 1248 (concentrations up to 12 ppb) between 1991 and 1994 (FOIL200839 at FOIL200840; FOIL207154 at FOIL207162, 163). In 1998, Philip Services Corp. (PSC) performed an investigation onsite to isolate and eliminate sources of PCBs to outfalls 001 and 004 (FOIL207546 at FOIL207549). The outcome of this study is not specifically stated in reviewed

documents. However, monitoring of outfall 001 discharges is currently ongoing, and detections of PCBs at concentrations up to 0.75 ppb are still evident (Knauf Shaw Roth Brothers Exhibit E, 1, 5, 6, 25, 37, 41, 45, 47, 81).

- Later in 2018, Barton & Loguidice noted that the increased PCB concentrations observed during storm effluent monitoring efforts was likely from scrap yard effluent and soil/debris collected in the scrap metal yard (FOIL213165 at FOIL213165).

2.2.2 Runoff

This section discusses the documented or potential PCB-containing discharges from the Site to Ley Creek or its tributaries via stormwater runoff.

- Surface water from the Site drains northeast to South Branch Ley Creek (FOIL204076 at FOIL204093). The eastern half of the property is paved (Google Earth 2018).
- Rail spurs adjacent to the Site could have potentially functioned as preferential pathways for surface runoff onsite.

2.2.3 Groundwater

This section discusses the documented or potential PCB-containing discharges from the Site to Ley Creek or its tributaries via groundwater. Site groundwater has been observed at relatively shallow depths and is documented to flow northeast towards South Branch Ley Creek (FOIL204076 at FOIL204093; FOIL207287 at FOIL207300).

- In 1988, NYSDEC noted that groundwater may be a source of PCBs to monitored stormwater discharges at the Site, as PCBs were detected in outfall 004 stormwater, which received groundwater infiltration. When the infiltration was corrected, PCB levels notably decreased (FOIL200839 at FOIL200840). Potential onsite sources responsible for PCB contamination in onsite groundwater were not specified in the document
- Available documents indicate onsite groundwater contained Aroclor 1254 at concentrations up to 4.3 ppb in June 2014 and up to 35 ppb in June 2018 (these concentrations were in excess of the NYSDEC Class GA groundwater standard of 0.09 micrograms per liter [0.09 ppb]) (FOIL209537 at FOIL209542, 601; FOIL210077 at FOIL210082, 111). Roth Brothers incinerated copper wire insulation, and wire and cable coatings can be associated with PCB Aroclors 1254 and 1260 (Knauf Shaw Roth Brothers Site Dossier 2018, 1; FOIL204759 at FOIL204775; Erickson and Kaley 2011, 10). Hydraulic fluids are typically associated with Aroclors 1232–1260 (Aroclors 1232, 1242, 1248, 1254, 1260) and cutting oils with Aroclor 1254 (Erickson and Kaley 2011, 10).

3. Data Gaps

TIG Environmental has identified the following data gaps that would increase the understanding of how PCBs were used onsite and/or released from the Site.

- According to available permit documentation, Roth Brothers held an SPDES permit for several years while operating onsite. However, the date on which the permit was first issued is not available in reviewed documentation.
    - Recommendation: Request full permit documentation for SPDES permit #NY0110311 from NYSDEC.
- Baghouse dusts and construction debris generated onsite were historically dumped in an area north of Plant 2. The duration of this dumping operation is not available in reviewed documentation. The assessment of this operation and further detail on the materials disposed of in the northern fill area is limited by the lack of documentation on operations during that time.
- The source(s) of scrap metal for Roth Brothers scrap processing operations is not available in reviewed documentation. Records including the origin of materials shipped to the Site for processing are likely limited by the lack of documentation on operations during that time.

4. Proposed Sampling to Assess Contributions to the Study Area

Because of the data gaps identified in Section 3, TIG Environmental proposes additional sampling at the Site, as described below. The sampling locations should be analyzed for PCB Aroclors (EPA Method 8082A), PCB congeners (EPA Method 1668C), total organic carbon (Lloyd Kahn method), grain size (ASTM D422), and total solids (ASTM D2216-98). In addition to those parameters, TIG Environmental may also propose sampling for particular contaminant classes (that is, metals, PAHs, volatile organic compounds [VOCs], and semivolatile organic compounds [SVOCs]), depending on the nature of operations surrounding a particular sampling location.

4.1 Soil

- Aluminum scrap is stored near baghouses along the western boundary of the Site (Knauf Shaw Roth Brothers Exhibit I, 4). Baghouse dust resulting from the processing of aluminum twitch is an onsite PCB source (FOIL207154 at FOIL207165). Lead has been detected at concentrations in onsite soil in the baghouse/scrap storage area (29,600 ppm) and just west of the baghouse area, along the storm sewer discharge pathway (41,500 ppm) (FOIL206608 at FOIL206652–653, 658). TIG Environmental recommends collecting a soil sample near the baghouse storage area for PCB and metals analysis.
- PCBs have been detected at 204 ppm in soil within the northern fill area (FOIL207287 at FOIL207306). The available documentation does not specify whether this result is an individual Aroclor or a calculated total. Lead has been detected up to 220,000 ppm in the northern fill area where Roth Brothers historically dumped baghouse dusts and construction debris generated onsite (FOIL207287 at FOIL207317). Lead has been detected at its concentrations in onsite soil at the paved fill area (56,500 ppm) (FOIL206608 at FOIL206652). TIG Environmental recommends collecting two soil samples from the northern fill area, closest to the northern boundary of the Site for PCB and metals analysis.

4.2 Sediment

- Outfall 001 discharges to South Branch Ley Creek with continued detections of PCBs above SPDES permit levels (FOIL200839 at FOIL200840; FOIL207154 at FOIL207162, 163). TIG Environmental

recommends collecting a sediment sample within the swale receiving drainage from outfall 001. Former outfall 003 and outfalls 004 and 005 are located on property now known as the US Hoffman Site. TIG recommended sampling near these outfalls in the US Hoffman Site memo.

- A series of outdoor catch basins are located downstream of the scrap metal receiving area (Knauf Shaw Roth Brothers Exhibit I, 4). TIG Environmental recommends collecting a catch basin sediment sample, if feasible.
- A catch basin is located in the center of the scrap metal storage area on the northwest portion of the Site (Knauf Shaw Roth Brothers Exhibit I, 4). TIG Environmental recommends collecting a catch basin sediment sample, if feasible.

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This ESM was prepared using the evidentiary materials listed below and provided with this document.

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